LIBRARY
ST BARTHOLOMEW'S

MONTHLY REPORT

ON

THE PROGRESS OF THERAPEUTICS.

Edited for the Edinburgh Medical Journal.

No. XXXIII.—October 1877.

BY

W. HANDSEL GRIFFITHS, Ph.D., L.R.C.P.E.,

Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris, and of the Pharmaceutical Society of St Petersburgh; Hon. Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

WELLCOME INSTITUTE
LIBRARY
Coll.
Call.
No.

MONTHLY

REPORT ON THE PROGRESS OF THERAPEUTICS.

By W. HANDSEL GRIFFITHS, Ph.D., L.R.C.P. Ed.,

Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris, and of the Pharmaceutical Society of St Petersburgh; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

(*Reprinted from the Edinburgh Medical Journal for October* 1877.)

NITRITE OF AMYL IN AGUE.—The *Glasgow Medical Journal,* April 1877, quotes from an article by Surgeon W. E. Saunders in the *Indian Medical Gazette,* on the use of nitrite of amyl in ague. He uses it mixed with an equal part of oil of coriander, to render it less volatile and to cover the odour. He states that it is the most powerful diaphoretic he has ever seen, and as such he now uses it in all cases of fever. In no case of ague did the nitrite of amyl fail to remove the attack in about one-third the usual time, and in most instances the fever did not return again. The following is the mode of administration adopted:—Four drops of the mixture, or two of the nitrite of amyl, are poured on a small piece of lint, which is given into the hands of the patient, and he is told to inhale it freely. He soon becomes flushed, and his pulse and respiration are much accelerated; when he feels warm all over, the inhalation is discontinued, as the symptoms continue to increase for a short time afterwards. A profuse perspiration now sets in which speedily ends the attack. In some cases, however, the cold stage merely passed off without any hot or sweating stage.

PHYSIOLOGICAL ACTION OF NITRITE OF AMYL.—Berger found that in noncurarised dogs, whose vagi were divided, the division of the spinal cord below the atlas was followed by lowering of the blood-pressure when the vapour of amyl nitrite was introduced into the lungs by artificial respiration. Lowering of the blood-pressure by nitrite of amyl is therefore not dependent on the vaso-motor

centre in the medulla. The frequency of the pulse in warm-blooded animals was always increased, and the respiration retarded by fatal doses.—Abstract in *Jl. of Anatomy*, vol. x. p. 658.

Physiological Action and Therapeutic Uses of Salicylic Acid, Salicylate of Soda, Salicine, etc.—The following is a *resumé* of the more important recent papers on this subject.

Dr L. W. Marshall calls attention to the fact that drowsiness is occasionally induced by the use of salicylic acid and its compounds. Twitchings of the muscles of the forearm and suppression of the secretion of the skin were also symptoms noticed by him. He believes that for its antipyretic properties, salicylic acid is unrivalled. As a febrifuge in febricula it has proved very serviceable in his hands. Care should be taken in its administration in typhoid fever, on account of its tendency to produce diarrhœa and dysentery; the soda salt has not this tendency. His trial of salicine was unsuccessful.—*Brit. Med. Jl.*, 24th Feb. 1877.

Dr William Squire writes that saline as an antipyretic must certainly rank below either quinine or digitalis. Salicylic acid is comparable with perchloride of iron in the control it exercises over rheumatic pyrexia. It would also appear to exercise some other beneficial influence on rheumatism, and to be useful in its later stages.—*Brit. Med. Jl.*, 10th March 1877.

In the *British Medical Journal*, 17th March 1877, are recorded several cases of acute rheumatism treated with salicylic acid in the Derbyshire General Infirmary under the care of Dr Ogle. In all, the marked and rapid disappearance of all the physical signs of the disease was manifest. The heart complication which existed in three of the cases seemed equally benefited. During the treatment with the acid, the patients were bathed with copious perspiration, the bedding having frequently to be changed. In several of the cases, where large and frequent doses of the acid were taken, the drug seemed to produce very great depression, with a very slow and soft pulse, and perhaps convalescence was protracted (after the rheumatic symptoms disappeared) on that account; it seems probable that a stimulant, as ammonia, given in small doses with each dose of the acid, might obviate this result to some extent. One case was remarkable, inasmuch as the patient, a girl of sixteen, after taking 180 grains in 18 hours, appeared to be suffering from all the effects of severe cinchonism. In all the cases, the acid was given in solution, with bicarbonate of soda, just sufficient to dissolve it. This forms a pleasant and agreeable mixture, almost without taste, quite in contrast with the solution of the acid in borate of soda, which is decidedly the reverse of pleasant.

M. Jaccoud speaks favourably of salicylate of soda as an antipyretic in typhoid fever. A few drops of chloroform combined with it will prevent the nausea and vomiting which it occasionally produces. Large doses must be given—as much as two drachms

in two portions at an interval of a quarter of an hour between seven and eight o'clock in the evening. The fall of temperature commences half-an-hour after the exhibition of the remedy, varying from one degree to one degree and a half (centigrade); it can fall as low as two degrees and a half in five hours. The temperature can be kept down by small doses frequently repeated. After the first dose, the quantity of the urine is diminished, and it becomes dense and loaded with uric acid and urates. Thus, in favouring the elimination of nitrogenous material, it resembles benzoic acid. To avoid the danger of catarrhal nephritis, the patient should drink several pints of fluid in the twenty-four hours after its administration. It is slowly eliminated; traces can be found in the urine forty-eight hours after its ingestion.—*Le Mouvement Médical,* 24th March.

D. Erichsen says that he has found in severe cases of scarlatina that salicylic acid speedily produces a reduction of temperature, and corresponding amelioration of the general condition. He gives it in doses of one or two grains, according to the age of the child, every hour, during the first two hours, and afterwards every two hours. He has also found it useful as a prophylactic.—*St Petersburg Med. Woch.,* 24th March 1877.

In the opinion of Prof. Sée salicylic acid does not deserve the name of antipyretic, in the proper sense of the term. That it reduces abnormal temperature there can be no doubt; but he has never noticed a fall of more than one degree or a degree and a half, and even then this fall was not persistent or regular, as, after a time, whether the medicine were continued or not, the temperature rose to the same height as when the medicine was first administered. M. Sée is of opinion that salicylic acid and its preparations cure rheumatism, not by their antipyretic properties, but by some specific action on the morbific agent which generates the affection. He warns physicians against the use of salicylic acid in typhoid fever. In some cases that came under his observation, he noticed that all the patients, without exception, became delirious; when the medicine was suspended the delirium ceased; but when the medicine was resumed the delirium returned. M. Sée fears also that the administration of salicylic acid in typhoid fever would be likely to induce perforation of the bowel.—*British Medical Journal,* 31st March 1877.

Dr G. H. Dessaw, of New York, from an experience of thirty-four cases of articular rheumatism, considers that salicylic acid is destined to supersede all other remedies in this affection. In every case of diphtheria which he had seen in the commencement of its approach, and had treated with salicylic acid, a cure was effected. In the light of recent theories as to the nature of the cause of diphtheria, advanced by German authorities, namely, the germ theory, it would appear that salicylic acid is the scientific remedy for the disease. In eight cases of severe erysipelas the cure effected by salicylic

acid was rapid and permanent, an improvement being observed in twenty-four hours. In scarlatina and in typhoid fever, Dr Dessaw's experience of salicylic-acid treatment is favourable. To the physiological symptoms of the drug, observed by various writers, Dr Dessaw adds dizziness and slight bleeding from the throat, which occurred in one case after using the pure acid.—*New York Medical Record,* 7th April.

In the *British Medical Journal*, 14th April, Dr Clement Daruty reports a case of rheumatic fever in which salicylate of soda and salicin completely failed to reduce the temperature or to mitigate the symptoms.

In the same journal, Dr Russell of the Birmingham General Hospital reports eight cases of rheumatic fever treated with salicylic acid. In all these cases the temperature began to decline immediately with the first dose of the medicine, and underwent a rapid fall to the normal standard in from fourteen to sixteen hours, whilst the joint-symptoms were brought to an equally rapid termination.

Mr A. W. Postans gives the following method for preparing glycerole of salicin: the salicin and glycerin are first rubbed together in a glass mortar, and are then transferred to a porcelain dish, and a gentle heat applied until complete solution is effected. One drachm of glycerine will completely dissolve five grains of salicine. Mr Postans also gives a formula for a glycerole of pepsine and salicine.—*Pharm. Journ.*, 21st April 1877.

Dr W. Thomson of Peterborough states, that he feels perfectly confident that we have in salicine a most valuable remedy, especially in all malarious fevers. He records three cases treated successfully; the drug was given in thirty-grain doses every second hour. Dr Thomson is of opinion that the failure of the old-fashioned decoction of willow bark was from want of concentration, or the inability to prescribe a sufficiently large dose of the specific drug.—*British Med. Jl.*, 28th April 1877.

It appears from the investigations of Dr Danewsky that salicylate of soda exerts a characteristic action on the vascular system. At first it augments the energy of the cardiac contractions, causing more powerful systolic movements and increase of the blood-pressure. In consequence of its action on the vagi, the frequency of the pulse is sometimes greater and sometimes less than normal, while at a later period from paralysis of the excito-motor cardiac nervous system the pulse is weak. The augmentation of the blood-pressure is due partly to the greater energy of the cardiac contractions, partly to the direct stimulation of the vaso-motor centres. This is proved by the fact that the blood-pressure falls after division of the spinal cord in the cervical region; whilst it rises on the injection of the drug into the carotid artery, which causes the brain to receive a certain quantity of the remedy before the heart. There is an increased frequency of the respiratory movements due

to irritation of the pulmonary vagi, and not to direct participation of the respiratory centre in the medulla. It is only after very large doses have been administered that the respiratory centre is gradually or rapidly paralyzed, and asphyxia is produced. The influence of the salt on the temperature is very inconstant and inconsiderable in healthy men and animals, but in the febrile state its action is more powerful. Dr Danewsky considers that in the febrile state there is diminution of blood-pressure as a result of diminished cardiac and vaso-motor activity, but when salicylate of soda is given it acts like quinine and digitalis in augmenting the blood-pressure, and promotes the elimination of caloric.—*Practitioner*, May 1877, from *Arbeiten aus der Pharmakolog. Laborat. zu Moskaw.*

Mr A. D. L. Napier states that the form of rheumatic disease for which he has most frequently ordered salicine is the arthritic, and in these cases relief was almost invariably experienced; he has frequently seen reduction of pain, redness, heat, and swelling about an hour and a half after the administration of a twenty-grain dose. The salicylate of soda in addition to its general action in lessening arterial tension frequently acts as a powerful diaphoretic, diuretic, and sometimes as a sialagogue. Those latter effects seem to be more often caused by the soda salt than by the acid. Symptoms exactly similar to cinchonism may follow the prolonged use of salicine. It is necessary for the perfect action of salicine that the drug should be used in reduced doses for some time after acute symptoms are dispelled. In muscular rheumatism salicine affords some relief, but in Mr Napier's hand its action in such cases has given uncertain results. In neuralgic affections he has seen much good from salicylic acid, more especially in mixed cases of neuralgia and rheumatism. From its greater solubility, and from its being more easily taken by the majority of patients, Mr Napier has found the soda salt preferable to the acid, but with the exception of the greater diaphoretic action of the former he has been unable to discriminate between their diaphoretic action.—*Practitioner*, June 1877.

Mr J. W. White believes that, except in small doses, salicylic acid is the best prescribed in suspension with tragacanth or in the form of pill, especially as there is little doubt that, in soluble combinations with alkalies and alkaline salts, the properties of the free acid are more or less modified. If salicylic acid be beaten up with one-tenth of its weight of borax, and the same proportion of glycerine and tragacanth, an excellent pill-mass is procured, of which six grains represent five of the acid, and do not form an inconveniently large pill.

Mr J. C. Thresh undertook some experiments to ascertain whether or not the increased solubility of salicylic acid in solutions of borax and other salts was due to some chemical decomposition between the acid and the salts employed, and if the solutions thus formed possessed the antiseptic and antifermentative properties of the acid. He concludes from his experiments that some reaction, as yet un-

determined, does take place between the acid and salts, yet that in whatever state the acid exists in those solutions it is capable of exhibiting in a high degree its characteristic properties.—*Pharm. Journ.*, 16th Dec. and 25th Nov. 1876, quoted in *Lond. Med. Record*, 15th June 1877.

Dr K. N. Macdonald puts on record (*Brit. Med. Jl.*, 16th June) a case of rheumatic fever, which was successfully arrested in five days by the use of salicin; ten-grain doses were given every four hours. Dr Macdonald remarks that there is scarcely room for doubt that the favourable issue in this case was mainly due to the salicin, and that in it we possess a valuable therapeutic agent in this troublesome and mischievous disease.

A case of acute rheumatism, treated by salicylic acid, under the care of Dr Dale of the West Norfolk and Lynn Hospital, is recorded in the *Medical Times and Gazette*, 19th May. The case was of special interest on account of the scarlatiniform rash which appeared. Dr Weber first called attention to this as being one of the occasional toxic effects of salicylic acid.

A case of severe rheumatic fever, treated by salicylate of ammonia, is given in the *Medical Examiner*, 19th April 1877, by Dr Barclay, of St George's Hospital. The antipyretic effect of the drug was well shown by the fall of three degrees after six doses of the medicine. When the medicine was discontinued the pains returned.

Professor G. Sée has lately read before the Paris Academy of Medicine an elaborate paper on salicylic acid and the salicylates, which is published in the *Union Médicale*, 3d July *et seq.* The following are his conclusions:—Its only advantage over carbolic acid as an external antizymotic agent is its privation of odour. As an internal antiseptic it manifests no appreciable effect in purulent affections or contagious and parasitical diseases—as diphtheria, or muguet, or gangrene, or finally in diabetes. As an antipyretic the acid and its salts possess only transitory and doubtful properties. The febrifuge power is exceedingly limited. In acute articular rheumatism its effects are most certain and prompt; in simple chronic rheumatism also its use has been satisfactory, and the same may be said of its employment in the acute crises which manifest themselves from time to time in simple rheumatism or in chronic rheumatic arthritis. It is, however, in acute and chronic gout that the results are most remarkable, the salicylic treatment rapidly effecting a complete cure without the production of any metastasis, the only inconveniences arising being some disturbances in the ear, and a certain amount of debility or narcotism. These latter disappear when the dose is diminished, but the perturbations of audition are more persistent. Salicylate of soda aids the elimination of gravel, and has also the advantage of allaying the nephritic pains in this affection. In certain facial neuralgias and sciatica the salicylic treatment has seemed to be of advantage, but its action in these affections is not definitely established. In painful affections of the

spinal cord salicylate of soda produces calming effects, but a certain amount of debility is produced by the continuance of its employment.

At the meeting of the Paris Société de Thérapeutique, 17th April, M. Gubler recounted his experience of salicylic acid. He is of opinion that it possesses neither antipyretic nor antiphlogistic properties. In certain cases it produces copious diuresis; in others, on the contrary, the quantity of urine voided is diminished. The reason of this is, the salicylic acid stimulates the kidney whilst eliminating itself by that organ; but sometimes it irritates, and this irritation produces an increase of urine. If, however, the kidney be diseased, as in certain severe fevers, and in albuminuria, this stimulation may go on to inflammation, and then there is a diminution of the water which passes through the kidney. It is probable that in cases in which it induces diuresis it brings on an arrest of temperature up to a certain point. M. Gubler found that the urine of patients taking salicine contains salicylic acid, and he regards this transformation as analogous to that of chloral into chloroform and formic acid. He has also observed that the urine of patients after taking salicylic acid is a brown bistre-like colour similar to the tint given to the urine by carbolic acid. M. Hogg stated that he had found carbolic acid in the urine of patients under the influence of salicylic acid.—Quoted in *London Medical Record*, 15th July.

Mr Erskine Stuart states that when salicylic acid is taken internally, it is excreted in the urine as salicyluric acid; salicine is excreted as salicyl-hydride. Salicylate of soda in solution is a very weak antiseptic, but it is excreted in a very active form, for urine passed three hours after taking a 15-grain dose of it, keeps fresh, free from ammoniacal odour, and perfectly clean, when exposed to the air for ten days.

From a careful study of the action of salicylic acid in nearly two hundred cases, Dr Bälz has deduced the following conclusions:—It deserves as a rule the preference over all other antipyretics, but it fails in certain cases in which other remedies produce valuable results. Apart from its antipyretic action, it increases the excretions from the skin and kidneys, and may consequently prove useful in the treatment of some cases of dropsy. The unpleasant nervous symptoms which sometimes supervene during its employment usually disappear spontaneously, and are not dangerous.—*Archiv der Heilkunde*, 1877.

EDINBURGH: PRINTED BY OLIVER AND BOYD.

Digitized by the Internet Archive
in 2021 with funding from
Wellcome Library

https://archive.org/details/s5303id1397868